

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior listing of claims for this application.

Claims 1-11 (Canceled).

12. (Previously presented) A field emission display device comprising:

at least one current emitter formed of a doped silicon, said current emitter having a tip from which emission current is emitted, wherein said tip comprises nitrogen; and

a substrate having a phosphor coating in at least one region positioned to receive electrons emitted by said current emitter,

said current emitter further comprising sides below said tip, wherein at least a portion of said sides are surrounded by an insulating layer to prevent current from radiating out of the sides.

13. (Original) The device according to claim 12, wherein said current emitter resides on a base substrate covered by a barrier film.

14. (Original) The device according to claim 13, wherein said barrier film comprises silicon dioxide.

15. (Previously presented) The device according to claim 13, wherein said current emitter has a base on said barrier layer and a projecting top connected with said base.

16. (Previously presented) The device according to claim 13, further comprising a conductive layer deposited over said barrier film.

17. (Original) The device according to claim 16, wherein said conductive layer comprises aluminum.

18. (Canceled).

19. (Currently amended) The device according to claim [[18]] 12, wherein said insulating layer comprises silicon dioxide.

20. (Currently amended) The device according to claim [[18]] 12, wherein a silicon grid resides on top of said insulating layer.

21. (Original) The device according to claim 20, wherein a metal layer resides on top of said grid.

22. (Original) The device according to claim 21, wherein a passivation layer resides on top of said metal layer.

23. (Original) The device according to claim 22, wherein said passivation layer comprises nitride.

24. (Currently amended) A field emission display device comprising:

at least one current emitter having sides; and

a substrate having a phosphor coating on at least a portion of the substrate, said coating positioned to receive electrons emitted by the current emitter, said current emitter comprising a surface-treated focal point formed on said current emitter, wherein said focal point emits current emissions, [[and]] wherein said focal point comprises nitrogen, and wherein at least a portion of the sides of the at least one current emitter is surrounded at least in part by an insulating layer.

25. (Previously presented) The device according to claim 24, wherein said surface-treated focal point has atomic concentrations of oxygen and silicon reduced by a plasma enhanced chemical vapor deposition hydrogenation process and a subsequent nitrogen infusion process to values smaller than the atomic concentration of oxygen and silicon of a non-treated focal point subjected to atmospheric conditions.

26. (Currently amended) A field emission display device comprising:

an array of current emitters, wherein each current emitter has sides; and

a substrate having a phosphor coating in at least one region positioned to receive electrons emitted by said current emitters, said current emitters each comprising an emission focal point for emitting current emissions, wherein said emission focal point comprises comprising doped silicon infused with nitrogen, and wherein at least a portion of the sides of the current emitters are surrounded at least in part by an insulating layer.

27. (Currently amended) A field emission display device comprising:

at least one current emitter with sides; and

a substrate having a phosphor coating in at least one region positioned to receive electrons emitted by said current emitter, said current emitter comprising a top and bottom surface, said top surface comprising nitrogen, and wherein at least a portion of the sides of the at least one current emitter is surrounded at least in part by an insulating layer.

28. (Currently amended) A field emission display device unit comprising:

a current emitter having a top and bottom surface, wherein said top surface is a surface-treated top surface, and wherein said surface-treated top surface comprises nitrogen; and

a substrate having a phosphor coating in at least one region positioned to receive electrons emitted by said current emitter, wherein said current emitter further comprises sides below said top surface, wherein at least a portion of said sides are surrounded at least in part by an insulating layer.

29. (Currently amended) A field emission display device comprising:

a plurality of current emitters each having a top and bottom surface, wherein said each top surface is a surface-treated top surface, and wherein said each surface-treated top surface comprises nitrogen; and

a substrate having a phosphor coating in at least one region positioned to receive electrons emitted by said current emitters, wherein each current emitter further comprises sides below said top surface, wherein at least a portion of said sides are surrounded at least in part by an insulating layer.

30. (Canceled).

31. (Currently amended) A current emitter for use in a field emission display device, said current emitter comprising:

a top and bottom surface, said bottom surface being formed over a semiconductor substrate, and wherein said top surface is a treated top surface

comprising nitrogen A current emitter for use in a field emission display device, said current emitter comprising:

a top and bottom surface, said bottom surface being formed over a semiconductor substrate, and wherein said top surface is a treated top surface comprising nitrogen, wherein said current emitter further comprises sides below said top surface, wherein at least a portion of said sides are surrounded at least in part by an insulating layer.